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ELECTRICAL WORLD

News Issue

OCTOBER 30, 1948

A McGRAW-HILL PUBLICATION

G. J. Oglebay, left, New Indiana Electric Association President, Is Congratulated by His Predecessor, C. K. Graham

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A "SUPERHIGHWAY" that saves you thousands of tax dollars!

A large midwestern city estimates that the cost for constructing a superhighway to alleviate its downtown traffic congestion would be $200 million. The power company in that area has suggested that the city can get better and quicker results by spending less than one-fifth as much to modernize its municipally operated transit system.

Fantastic? Judge for yourself: A year ago the transit company serving the City of Atlanta put many new electric trolley coaches into operation. Since then traffic congestion has decreased substantially on six downtown streets. According to civic leaders, this transit modernization program not only improved the traffic flow but saved the city and its taxpayers thousands of dollars.

Modern electric transit works with the expediency of a superhighway ***but*** it puts the accent on the movement of ***people,*** rather than vehicles. For example, it would require 29 automobiles stretched bumper to bumper over an entire city block to equal the carrying capacity of ***one*** trolley coach. By carrying many people in fewer vehicles, and requiring no parking space, electric transit uses existing street space most efficiently.

Save thousands in taxes by actively promoting greater use of modern electric transit in the cities you serve. You'll help lick their traffic problems more quickly and economically . . . and at the same time, you'll be building good community relations, fulfilling your responsibility to provide complete electric service. ***Apparatus Department, General Electric Company, Schenectady 5, N. Y.***

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NEWS OF THE ELECTRICAL WORLD

The Electrical Week

Rising prices of fuels, labor, and materials have forced utilities to appeal to regulatory authorities for rate increases, and they have been getting them . . . A new WPB, including a resurrected OWU, is rising in Washington. The present plan, being formulated by NSRB's Power and Utilities Division, is to be held for use only in emergencies . . . Load swings and load shedding received close attention at the AIEE Midwest general meeting. Lively discussion brought out many ideas and facts that are different and sometimes startling . . . Utility methods of treating insulating oil were called obsolete by a speaker at the PEA Electrical Equipment Committee. In refutation other speakers gave reports on modern practice in this field . . . And at a meeting of the PEA Meter Committee, another worry for utilities arose. The worry is that rocketing customer loads will eventually outstrip watthour meter ratings before the full life of the meter has been reached.

Hot Springs, Ark., is drinking water today from Arkansas Power & Light's Lake Hamilton. The city has two reservoirs, but both are dry.

George Mueller, president of the Duquesne Light Co independent union when it struck the Pittsburgh power utility two years ago, did not attend the recent convention in Washington of the CIO Utility Workers Union, although he is on the CIO payroll. Mueller is looking after the CIO's minor interests at Duquesne, where he failed to swing the independent union membership over to the CIO.

Sales of power boilers to industrial customers have fallen off 45%, primarily because of the high cost of industrial power generation. If the capacity is put in at all, one boiler man declares, utilities will have to do it, because industrials find it even more economical to buy power than to generate it under today's high capital costs.

General Electric has been praised highly by President Etienne de Lassus, of French Thomson-Houston, a GE affiliate, for the information and technical help it extended to assist European electrical manufacturers back into production. Partly as a result of this help, Alsthom, a subsidiary of the French firm, will install 600,000 kva of generating equipment this year, part of it in countries other than France. Next year Alsthom expects to install 900,000 kva, divided equally between hydro and thermal equipment. Along with this will go 1,200,000 kva of transformers and allied equipment.

One manufacturer of boiler tubing cleared up a jam on his order board by wiping out orders for the first quarter of 1949. Because of the tube shortage, orders were piling up so high that the schedule for those months wasn't going to mean anything anyway. Boiler producers, meanwhile, are on part time in their tube-bending plants.

Here's something new under the Taft-Hartley Act. NLRB Attorney Philip Fusco had to shift from one side of the trial table to the other at a recent hearing on the strike last year at North Electric Manufacturing Co, Galion, O. The company charged the CIO United Auto Workers coerced the employees. The union said the same about the company. Fusco, prosecuting both charges before Trial Examiner Howard Myers, huddled with the union when presenting its case, and with the company when presenting its charges against the union.

An eastern utility is rushing a new power station to get it on the line for the December peak, but the price is high. To keep the job going, the company is forced to pay electricians $3 an hour for an eight-hour day, let them work a ninth hour for $6, and pay them $4.50 a day subsistence. The total is $34.50 a day or $172.50 per 45-hour week.

Notes From the News

The U. S. Chamber of Commerce has issued a report demanding that TVA's power rates be raised "in justice to the rest of the nation" because about half its costs are borne indirectly by the nation's taxpayers . . . Omaha Public Power District has raised its contribution to the Omaha Community Chest from $25,000 in 1947 to $30,000 for 1948 . . . AEC is after more domestic uranium, so is negotiating with the Vanadium Corp of America to buy uranium from two ore treatment plants that will start operation next year . . . Seattle City Council has decided that all negotia-

tions for the proposed purchase of Puget Sound Power & Light Co properties by Seattle City Light will be conducted by the full council at public sessions.

Smoking in the mine of the Straight Creek Coal Co, four miles from Pineville, Ky., caused the disastrous explosion on Dec 26, 1945, which took 20 lives. Faulty electrical equipment had been blamed until last week, when the mine was reopened and inspected by state and federal inspectors . . . Omaha Electric Committee, holding organization for the Western Iowa Power Co, formerly a part of the Nebraska Power Co, is still trying to sell it . . . Mines in Quebec Province, Canada, are turning to diesels to secure power because of the shortage of hydro power.

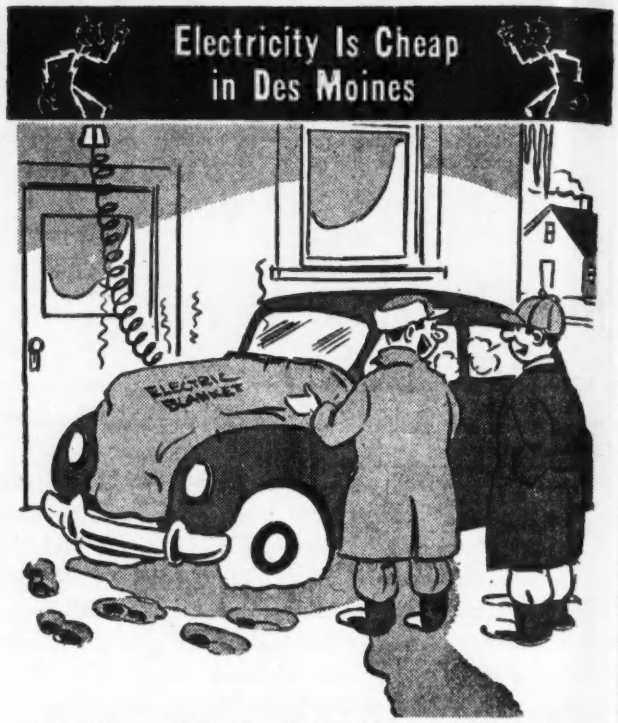
New York City is considering buying power from the Consolidated Edison Co for two of its subway lines, which require about 1.5 billion kwhr a year . . . Ohio Public Service Co is issuing a booklet, "You and Your Company," to its employees. The booklet carries all the information the company believes the employee should know about the company and its policies . . . Toledo, Ohio, is one city that will curtail special Christmas street lighting because of the power shortage.

FPC has held up pending a hearing a rate increase by Buffalo Niagara Electric on power sold to New York State Electric & Gas Corp . . . The first shipment of British-made portable electric tools has arrived in New York . . . The Massachusetts Department of Public Utilities has been asked to approve the merger of the Eastern Massachusetts Electric Co and the New England Power Co.

FINANCIAL:

Blyth & Co and associates have bought the second $6,000,000 unit of a $36,000,000 Seattle City Light revenue bond issue. The syndicate bid $5,807,280 for 2¾% bonds . . . Central Arizona Light & Power has received State Corporation Commission approval to issue 300,000 shares of common stock to be used to finance plant expansion. The issue has been underwritten at $10.25 a share to be resold to the public at $11. . . Maine Public Service Co directors took no action on common dividends, usually payable Oct. 1. The July dividend was cut from 40 to 25¢.

Consolidated Edison Co has arranged a $70 million, 10 months' credit with 15 New York banks. Beginning Dec 20, the utility will draw on the money to finance construction . . . Utah Power & Light stockholders have voted to increase capital stock from 1,250,000 to 1,500,000 shares . . . Investors flocked to buy £100,000,000 of British Electricity Board stock, 3% guaranteed . . . Columbus & Southern Ohio Electric has asked the Ohio PUC for permission to borrow up to $12,000,000 from a group of banks during the next two years.



"Yes Sir, we take the electric blanket with us everywhere we go. No more starting trouble for us. Electricity Is Cheap in Des Moines."

CARTOONS are being used with telling effect by the Iowa Power & Light Co to emphasize the cheapness of electricity in Des Moines, the largest city served by the company. Some cartoons also stress the importance of adequate wiring

COMMERCIAL:

The National Electrical Retailers Association is up in arms over Regulation W. Under the regulation home owners can get only 15 months' credit from a retail dealer but can get 25 years' credit when the price of appliances is included or added to a mortgage. The result is increased appliance sales by builders and lumber dealers . . . The Hoover Co made its first vacuum cleaner Aug 8, 1908. Total sales to date have topped 8,000,000 . . . Virginia Electric & Power Co had 27,835 electric water heaters on its lines on Oct 1, and 1,053 were bought in September. IES has published a report on "Lighting Practices for Stores and Other Merchandising Areas." It is intended for all those planning, selling, or buying such lighting.

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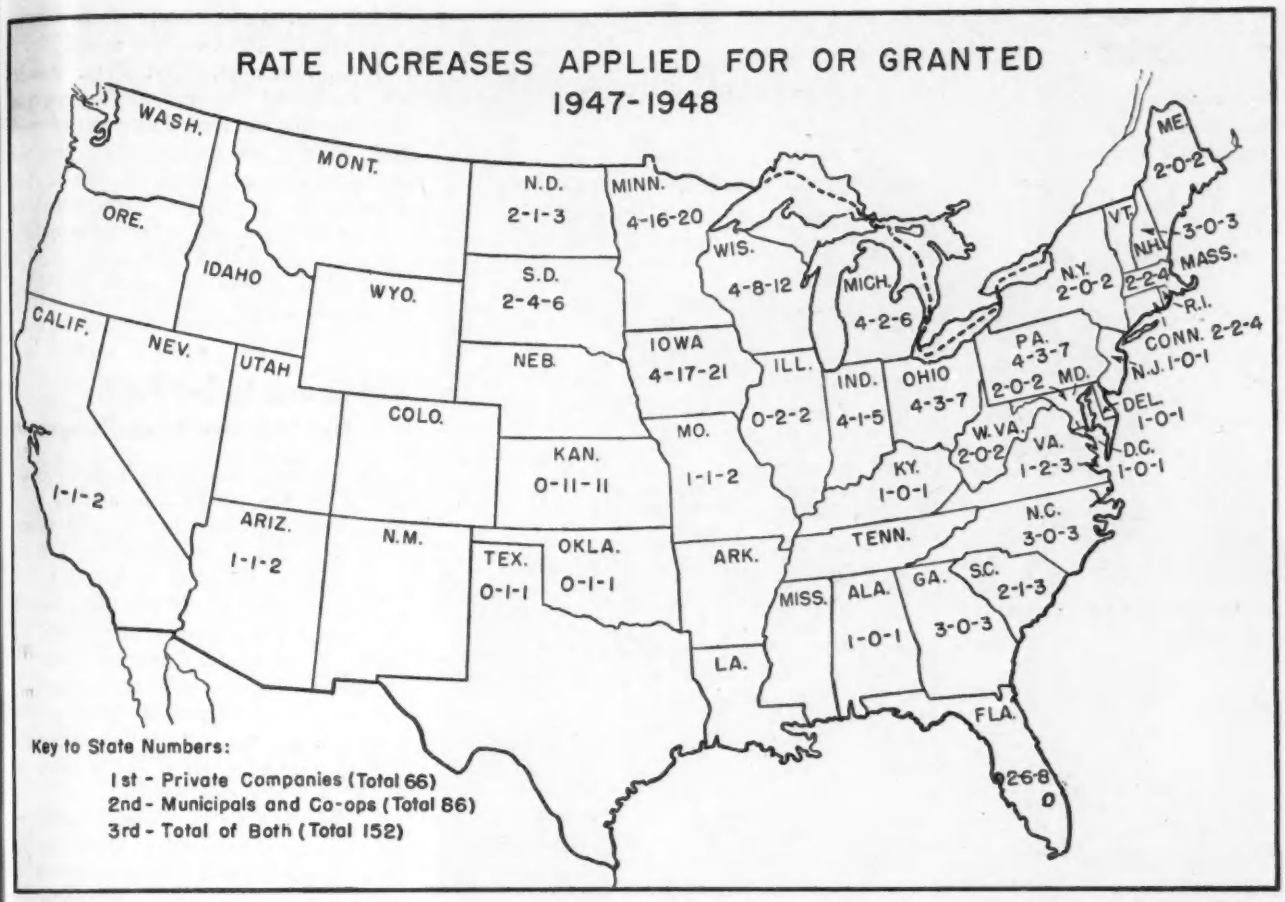


TWO YEARS' EFFORT to match regulated prices and unregulated costs has yielded good results for electric companies. But with costs of fuel rising, equipment and materials becoming more expensive, and labor demanding higher pay, something must give. Map shows how

Rate Increase Trend Develops

MORE AND MORE electric utilities are seeking rate increases, and state regulators are granting them. The trend is to across-the-board rate hikes, too.

There's been no stampede and the experts don't anticipate one. But the pace at which companies have been seeking—and getting—relief sharpened noticeably in the second quarter.

A recent survey covering the 21 months ended Sept 30 shows that 64 companies asked rate increases, two of them effective in two states for a total of 66. Fifty-three had been granted by Sept 30 and none refused. All gave the utilities substantially what they asked.

Probably as many as 25 were asked or granted during July, August, and September. About 80% came this year. No figure on the overall value is available, but data on those granted show that they ranged between 2 and 19%.

Primary factor behind the summer spurt in applications for relief is the collapse of resistance to the third round of wage increases. This had a three-way effect on power companies, hitting wage bills, materials, and the freight they pay on coal. Also behind the quickening of rate boost applications is the problem of financing new plant and earning satisfactorily on it.

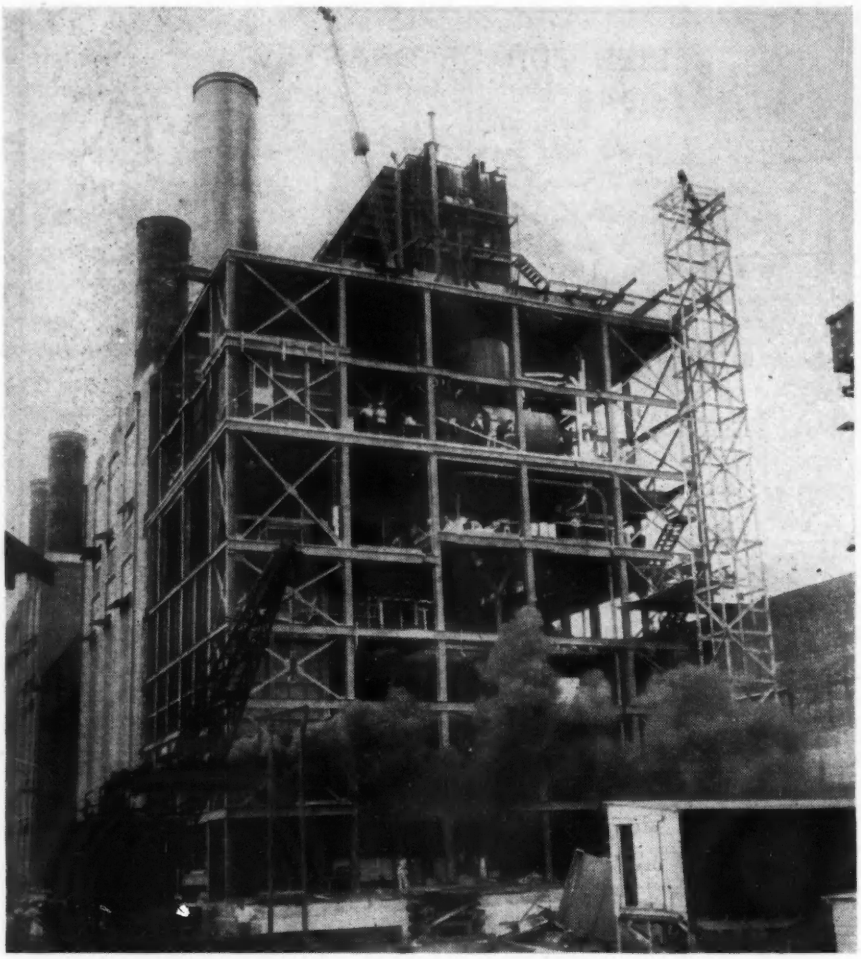
Rate increase sought by private systems so far have come primarily from areas where the cost of fuel—and transporting it—is a major factor. In six North Central border states, remote from the mines, 20 increases have been sought. Six Middle Atlantic states and the District of Columbia provide another concentration of increases—13. Many companies in this area are much closer to the mines, but they draw their fuel from deep pits, where costs are greater than in Midwestern strip mines.

A comparable concentration came in seven Southeastern states, 13 more increase requests. In Florida at least, fuel oil prices are responsible. Elsewhere in this region there is a forced switch from hydro to development of steam-electric capacity. And to the extent that this region is realizing its old dream of industrialization, rate payers generally may be helping to support the low rates at which new industrial loads would have to be served.

Three Central states, close to the coal fields, yielded nine more rate increase requests, and another nine came from four New England states. The survey did not include the one-month surcharges granted 10 small Maine companies in December, 1947, to help ease the strain of a bad water year. Only two came in Far Western states, one each in California and Arizona, probably because of fuel oil.

Private systems in natural-gas-using areas sought no rate boosts. Nor did companies in 15 other states west of the Mississippi, extending from the Northwest to Texas. Explanation for the absence of increase requests in some of these areas is obvious—the federally-supported competition that abounds in parts of the West. Another may be the prevalence of hydro power.

Increases by publicly owned systems during the period covered by this survey totalled 86. In general they followed the pattern of the rate boosts sought by private systems. During the 16 months between the war's end and the start of this survey period, municipals and cooperatives established slightly more than 60 rate hikes, most of them during the year that saw regulated power systems give about $90,000,000 in rate reductions.



NEARING COMPLETION is Plant Arkwright of Georgia Power Co at Macon, where a 40,000-kw steam unit is to be placed in operation sometime next month

Premature Obsolescence of Meters Alarms PEA

Utility metermen are concerned lest rocketing customer loads eventually outstrip watthour meter ratings before the full life of the meter has been reached. This was evident last week during a round-table discussion by representatives of meter manufacturers and the Meter Committee of Pennsylvania Electric Association. The discussion was part of the committee's fall meeting at Altoona.

Development of a self-contained meter for single-phase service and a similar meter for three-phase service that would handle all loads was suggested by committee members as one answer to premature obsolescence of meters. While the manufacturers conceded that a self-contained meter is practical up to 100 amp, they noted that above this value wire size and heating become a problem.

As a counter suggestion, one manufacturer suggested introduction of a 30-amp meter designed to handle loads up to 120 amp. Such a meter could replace present 15 and 50-amp meters and be mass-produced at low cost. It was indicated that work is being done to extend capacity of the present 50-amp meter to 400% load. Less than 10% of meters now being sold have ratings of 50 amp or above.

A growing tendency among utilities to measure customer demand in the lower ranges—under 10 kw—was confirmed by a manufacturers' survey showing that 70 to 80% of utilities questioned measure demands under 5 kw. Three companies measure demands as low as 1 kw. This interest in the lower demands, which was attributed to a trend toward rate simplification, found further expression in calls for the development of a device for single-phase thermal-demand meters that would permit measuring kilovars as well as kw.

A study of watthour meter obsolescence led A. K. Keen, South Penn Power Co, to conclude that (1) meters made before 1914 should be junked, (2) old meters measuring over 250 kwhr per month and those due for test and measuring only 200 kwhr should also be replaced, (3) 1914-26 meters should not be repaired except under unusual conditions, (4) old meters should be used for replacements where use is less than 125-150 kwhr per month.

J. C. Spielman, West Penn Power Co, described his company's program for maintaining recording-demand meters. Under the program all graphic meter charts are read in the meter department so that incipient troubles can be detected and corrected quickly. This, coupled with weekly inspection of demand recorders, has made 99.5% of all charts usable.

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EEI Group to Set Policy for Information Program

Edison Electric Institute's policy committee on the public information program was expanded from 9 to 31 members Oct 19 and assigned the job of developing a statement of principles.

The expanded group will meet Nov 8, at Chicago, where an attempt will be made to agree on the statement of principle. Until such agreement is reached no action will be taken on the appointment of an executive secretary nor on the selection of an agency to handle the program for EEI.

In selecting the additional members for the policy committee, according to participants in the meeting, every effort was made to get a broad representation of the industry in order to win the widest possible industry support. No two members of the committee will come from the same company, and all sections of the country will be represented.

Chairman George Gadsby, Utah Power & Light Co, presented the Oct 19 meeting with a proposed statement of principle. Copies will be sent to the new members with the request that they prepare whatever changes they care to make in it for discussion at the Chicago meeting.

Backers of the program expect that the new year will see an intensification of the preparation and distribution of material for companies' local use. In addition, efforts will be made to strengthen the local information programs of operating companies so that the best use may be made of information prepared under EEI direction. These were the two steps of a three-part program which were ordered activated by EEI directors at their Cleveland meeting Sept 16.

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City Plant Turned Down

City officials of Mount Dora, Fla., after an exhaustive survey, have discarded proposals for a city-owned power plant and have accepted a rate reduction submitted by Florida Power Corp.

NSRB Is Blueprinting New WPB in Plan for Industrial Mobilization

BLUEPRINT OF A NEW War Production Board—labeled "for emergency use only"—is being drawn up by the National Security Resources Board. The emergency WPB, which will include a refurbished OWU-type agency to control utility operations, is the first step in NSRB's master plan for industrial mobilization.

When the program is completed, NSRB will ask Congress for enabling legislation that will put the proposed controls on the shelf, ready for immediate use in event of an emergency. The completed package will consist of the whole book of war powers—price controls, labor drafts, federal financing of war plants, and censorship of communications, in addition to allocations and priorities. NSRB expects to complete the planning job around the first of next year.

NSRB's Power and Utilities Division, headed by former OWU Chief Edward Falck, is setting up the framework of WPB controls for electric power, gas, and water utility operations. In addition, the Falck group is reviewing controls for production of utility equipment, along the lines of WPB Order M-293.

Members of the Committee

Overall planning of the emergency OWU already has been started by a committee headed by Falck. Other members include Robert Wardle, Jr, Robert Blum, and F. E. Henderson, NSRB consultants; C. Girard Davidson and Walton Seymour, Interior Department; Mark Eldredge and J. Warren McLaughlin, Munitions Board; E. Robert de Luccia, Federal Power Commission; Walker Cisler, Detroit Edison Co; Charles Collier, Georgia Power Co; Charles E. Custer, Southwest Power Pool; Robert M. Hatfield, Combustion Engineering Co; Chandler W. Jones, New England Electric System; C. E. Kohlhepp, Wisconsin Public Service Corp; William A. Lyons, New York State Electric & Gas Corp; Alexander Macomber, Macomber & West; D. V. McNamee, Jr, Cleary, Gottlieb, Friendly & Cox; and J. E. Moore, Ebasco Services, Inc.

Hatfield met with representatives of electric equipment producers in Washington this week. The equipment makers reviewed Order M-293 and laid plans for an industry advisory committee and for staffing the proposed controls agency in event of an emergency.

Similar planning will be undertaken with utility industry representatives by NSRB's staff. Industry advisory committees will be set up to review controls proposed by NSRB. Actual control orders then will be drafted. These probably will include the following:

1. Provision for allocation and priority control of essential electric equipment.

2. Authority to direct interconnection of utility systems, regardless of ownership.

3. Powers to allocate actual utility services.

4. Orders enabling the emergency agency to impose conservation measures.

Planning to date contemplates establishment of a WPB-type agency at the start of an emergency. NSRB, or an entirely new organization, might take over the controls for initial administration. Its utilities branch would assume the new OWU functions.

NSRB planners are agreed that the major problem immediately facing the latter group would be the channeling of materials, equipment, fuel, and manpower into utility operations and the production of equipment. This would be handled by a requirements committee, which would be advised by the utility branch.

Other industrial controls will be programmed later by NSRB. Under proposed legislation, as now being considered, all could be put into effect by order of the President, with the concurrence of the Senate.

AG&E Plans Expansion at Cost of $500,000,000

A ten-year expansion program to cost more than $500,000,000 will be required by accelerated power demands in the seven-state territory served by American Gas & Electric Co, Philip Sporn, president of the company, recently told the annual AG&E managers' meeting at Oglebay Park, near Wheeling, W. Va.

The potential 1,400,000 residential, farm, and industry consumers of 1958—compared with 1,032,000 consumers now—would bring power requirements to a total of 22,600,000,000 kwhr, he said. AG&E has had an increase of 125% in customers over the past 20 years, with a 130% increase of rural consumers alone in the last 10 years. Average use has grown 244%, to 1,537 kwhr, since 1929.

The following expected to arise from the slated expansion were listed by Sporn: (1) erection of new generators and transmission facilities, (2) procurement of 9,000,000 tons of coal annually, (3) employment and training of 4,000 additional persons, and (4) financing.

In addition to existing plants, several of which are being expanded, five new plants are being planned or are already under construction. By 1958 total generating capacity of the system's plants will be approximately 4,000,000 kw.

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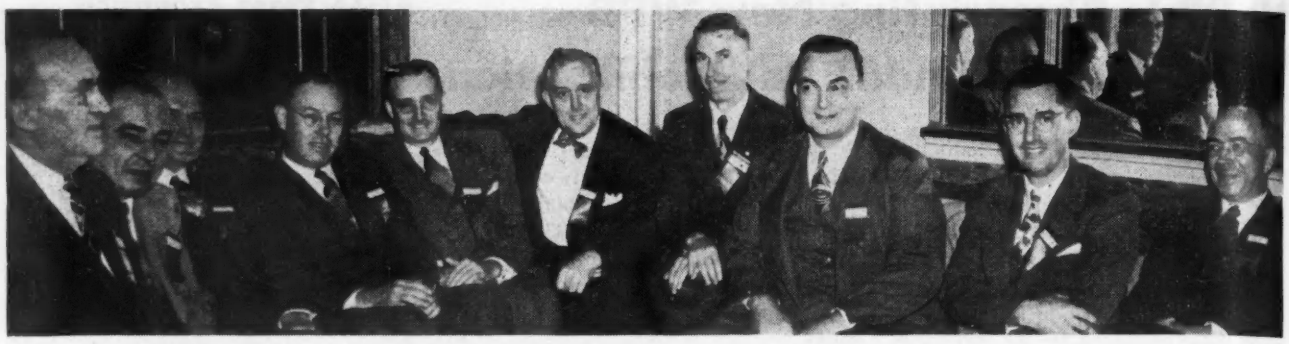
Iowa Franchise Renewed

Voters of Moville, Iowa, recently okayed a 25-year renewal of the Iowa Public Service Co's electric franchise.

A CERTIFIED LAMP broken down into its component parts forms a background at the Pittsburgh Certified Lamp Show for Thomas Allan, left, West Penn Power Co; T. O. McQuiston, Duquesne Light Co; Don Julien, executive secretary for Certified Lamp Manufacturers; and Earl Kifer, Pennsylvania Electric Co. Five utilities in area sponsored the show



COMMITTEE that planned the Midwest AIEE meeting. Left to right: E. W. Seeger, Cutler-Hammer, Inc; Carl Mekelburg, Square D Co; Carl Krueger, Wisconsin Telephone Co; J. A. Potts, Wisconsin Electric Power Co; E. T. Sherwood, Globe-Union, Inc; E. U. Lassen, Cutler-Hammer; E. Lithgow and G. Hutchinson, Square D; M. M. Iglehart, Cutler-Hammer; and Ralph Earle, Line Material Co

Load Swings and Load Shedding Discussed at AIEE Midwest Meeting

LOAD SWINGS and load shedding were the topics of liveliest discussion in power system sessions of the Midwest general meeting of the American Institute of Electrical Engineers in Milwaukee Oct 18-22. The meeting leaned strongly to industrial subjects, more than a third of the papers being concerned with distribution, motorization, control, and heating. Registration totalled 1,520.

Safest and most convenient method for emergency control of system loads is voltage reduction. It can be more selective, area-wise, than frequency reduction, and its effects in the system and on customers are more definitely known. That was the concensus of discussion following the joint paper on system load control by J. M. Comly and J. E. McCormack, Consolidated Edison Co; G. B. Kelley and T. W. Schroeder, United Light & Railways Service Co; and H. W. Phillips, Pennsylvania-New Jersey Interconnection.

Frequency reduction has an important effect on electrically-driven station auxiliaries, whose consequent slowing-down causes a decrease in station capability exactly when maximum capability is needed. Another effect that may be opposite in result from what is desired is the one on domestic refrigerators and other automatic motorized devices. These devices are designed to maintain fixed temperature or other conditions, and when their speed is lessened by frequency reduction, they just work longer to perform their functions. Thus the diversity factor of their load is reduced and the net effect may well be an increase, rather than a decrease, of load on the system.

A rather startling possibility of disaster resulting from frequency reduction was raised by J. R. Hafstrom, University of Wisconsin. It seems there is an increasing dependence on power system frequency in transmission of direction data by radar range in the operation of commercial air lines. Deviation from 60 cycles in magnitude sufficient for significant effect on system load might conceivably cause large error in, or even failure of, direction signals to planes in the air.

General practice is to use newest production capacity to carry base load because of its better economy, leaving the responsibility for handling peaks and load swings to older facilities. This may not always be the best thing to do, said R. L. Reynolds, Westinghouse, in his conference paper on "Effect of Fluctuating Load on Steam Turbines." Modern machines in the newer and larger stations can more safely withstand severe load fluctuations and are more responsive to them because of better design, smaller parts, and improved materials. Also the hydraulic governors on most of the modern turbines can be more readily adapted to automatic frequency control.

Proper division of responsibility for handling load fluctuations as between the electrical and mechanical sides of production is a problem yet to be solved. This conclusion emerged from discussion of Reynold's paper and of another on "Designing Boiler and Control Equipment for Fluctuating Loads." by P. S. Dickey, Bailey Meter, and P. R. Loughin, Babcock and Wilcox.

How well boiler room has accepted load swing responsibility in modern installations was recited by Loughin, who told of boiler units capable of almost immediate response to load demands, steam output rising from 5 or 10% to 75% of capacity in a few seconds. Dickey pointed out that there is a sub-

GROUP at the Midwest general meeting of the American Institute of Electrical Engineers includes, left to right, Dale H. Swanson, Line Material Co; W. E. Gundlach and J. E. Miller, Wisconsin Electric Power Co; A. G. Steinmayer, Line Material Co; Lloyd Hunt, Southern California Edison Co; A. R. Waekner, Line Material; and W. S. Wilder and R. I. Powers, Wisconsin Electric Power

UTILITY ENGINEERS in group are, left to right, M. L. Waring and J. M. Comly, Consolidated Edison Co of New York; Earle Wild, Commonwealth Edison Co, Chicago; M. Ward, Ontario Hydro-Electric Power Commission; T. W. Schroeder, United Light & Railways Service Co; H. W. Phillips, Pennsylvania-New Jersey Interconnection; Robert Brandt, New England Power Co; Otto W. Manz, Jr.

stantial amount of heat energy immediately available in the metal of boiler tubes and in the water contained in them. This heat is available for instant response before any demand is made on the fire in the combustion chamber.

One effective method of preventing pole fires is calking around the gain with a suitable compound, W. H. Wickham, Commonwealth Edison Co, reported. Micro-wave radio equipment for operation of supervisory control equipment can be expected on the market in the near future, W. A. Derr, Westinghouse, prophesied. He further stated that there is every reason to believe that this type of equipment will be as reliable as that currently used.

S. C. Killian, Delta-Star Electric Co, in describing a new outdoor air switch and a new concept of contact performance, stated that though silver-silver contacts proved best on film tests, their abrading characteristics under high pressure left much to be desired. He stated that copper-silver makes an ideal anti-abrasive combination and provides a superior electrical contact when compared to copper or the copper alloys.

A. W. Brown and S. E. Johnson, Illinois Northern Utilities Co, described an industrial installation wherein a dummy load switched by electronic means was successfully used to limit voltage variation and resultant fluctuation resulting from the operation of seam welders.

By 1960 one half of all the present engineering positions in the utilities must be filled by young graduates with ten years or less of experience, said Frank E. Sanford, Copper Wire Engineering Association. All but 20% of the engineering personnel of 1970 will be from this younger group, and five years later, Sanford continued, when most of them are still in their forties, they will have almost all the responsibility.

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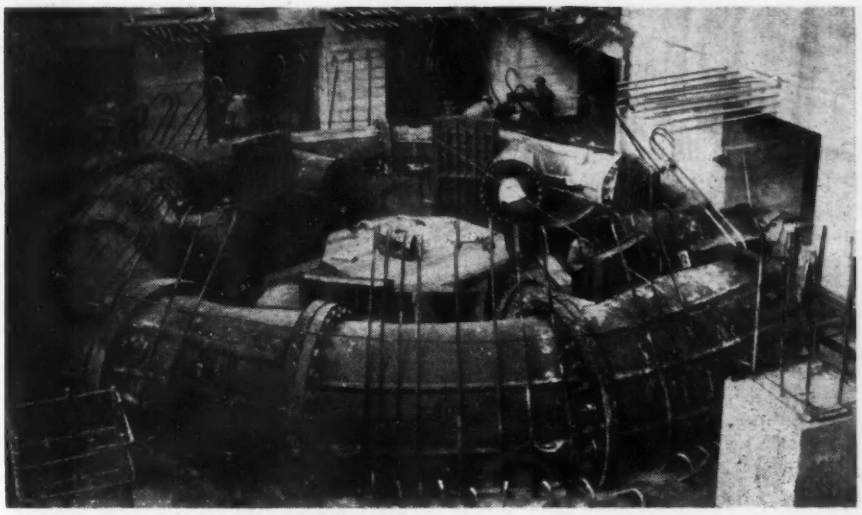
Appeals Court to Review Christoffel Perjury Case

A U. S. Court of Appeals has taken under advisement a plea that the conviction for perjury of Harold R. Christoffel, former president of the CIO Auto Workers Local 248 at Allis-Chalmers Manufacturing Co, Milwaukee, be reversed on technical grounds.

His attorney, O. John Rogg, former assistant U. S. attorney general, argued that the government failed to prove that a majority of the 25 members of the House Labor Committee was present last March 1 when Christoffel said he was not a Communist. He is under sentence of two to six years in prison.



NOT FOUR BUT SIX nozzles will be used on this turbine-jet to drive the first 62,000-hp generator at the British Columbia Electric Railway Co's new Bridge River project. The turbine-jet, believed by company engineers to be the first six-nozzle installation in the world, is 66 in. in diameter at the large end. It has been tested for 935 psi

Insulating Oil Treatment Methods Called Obsolete

Charges that utility methods of treating insulating oil are completely obsolete were leveled by L. J. Gill, Pennsylvania Power & Light Co, last week in Allentown. Gill made his charges while introducing a symposium on oil treatment at the fall meeting of the Electrical Equipment Committee of the Pennsylvania Electric Association. In refutation, symposium speakers gave reports of modern utility practice.

H. C. Marcroft reported Pennsylvania Water & Power Co's experience with an adsorption system of purification in which activated clay is mixed with the oil and subsequently removed in a filter press. The treatment cost, according to Marcroft, is less than half new oil cost and the quality is better.

Marcroft reported that use of a chemical wash had proven effective in reducing the adsorbent dosage and thus increasing the amount of oil handled per cleaning. Without chemical washing the cost per gal was reported as 17.67¢; with the chemical wash it was cut to 11.68¢. On test, neutralization number of an oil was cut from 2.0 to 0.5 and interfacial tension increased from 9.5 to 26.

Dan Holloway, Luzerne County Gas & Electric Corp, reported a conditioning cost of 15½¢ per gal for a test run of 6,500 gal using an adsorbent type purifier. Neutralization number was cut from 0.7 to 0.15 and interfacial tension raised from 18 to 36 in about 10 hours.

Also participating in the symposium on oil were F. M. Clark, General Electric, who discussed the relationship of oil to apparatus design, and J. G. Ford, Westinghouse, who discussed thermosyphon oil conditioners.

Use of forced ventilation and cooling systems in substations of the Philadelphia Electric Co system to maintain temperatures of 20C in winter and 30C in summer has in some cases increased circuit capacity as much as 10%, B. R. Nevin reported. In one substation the capacity released was equivalent to a new circuit and more than paid for the $50,000 investment.

For lighting station control boards, D. J. O'Neill, Holophane Co, recommended use of two 150-w incandescent lamps behind 8½-in double asymetric control lens units mounted 2, 2½, or 3 ft out from the face of the board. With units spaced 20 in. apart, vertical illumination on the board is uniform and free from specular reflections when viewed from normal positions.

Noting that thermal problems in switchgear have in the past been secondary to those of interrupting ratings, R. J. Salsbury, Duquesne Light Co, pointed out that rapid load growth, cost of financing new capacity, high material and labor costs, and material scarcities point to the more accurate use of available equipment. He urged that ASA standards for circuit breakers recognize the possibility of their short-time operation on a thermal basis and include it in an operating guide.

M. C. Harmon, S & C Electric Co, discussed the design, application, and performance of load interrupter disconnect switches. Harmon said that switches of this type were available up to 34.5-kv rating at present with work in progress on 69-kv designs. There is no reason why designs can't be extended into higher voltages, he said.

Another Probe of GRDA Plant Purchase Started

Another Congressional committee has started a probe of financial arrangements being made by the Grand River Dam Authority for purchase of a war surplus plant. Taking over where the House Appropriations Committee left off, Rep George Dondero, Michigan Republican, has announced that his Public Works Committee has started a new investigation.

Involved are GRDA's pending purchase of steam generating facilities at the Oklahoma Ordnance Works, Choteau, Okla., and the agency's plans for general expansion of its power system. The Oklahoma body proposes to refund $13,900,000 of its revenue bonds now held by the federal government and sell $8,300,000 to $9,300,000 in bonds to private sources to finance the additions.

Dondero has questioned authority of the Federal Works Agency, which holds the existing GRDA bonds, to modify terms of the bonds without Congressional sanction. Investigators for the Appropriations Committee, who had been studying the GRDA proposals for nearly two months, have turned over their findings to the public works group.

War Assets Administration approved the sale of the generating plant to GRDA for $3,500,000 last March. Terms of the sale called for final settlement with WAA within six months.

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Boilermaker Strike Ends in West after 3 Weeks

AFL boilermakers are back at work after a three-week strike that halted construction work on some 120 major projects in the seven Western states, including two power installations.

The installation of a 100,000-kw unit at Station P of the Pacific Gas & Electric Co was expected to be delayed from December until January by the work stoppage. Work on two 75,000-kw units at the Los Angeles Water & Power Department's Harbor steam plant also was slowed.

The union won an hour raise of 20¢ and an increase of 50¢ to $3.50 in out-of-town subsistence.

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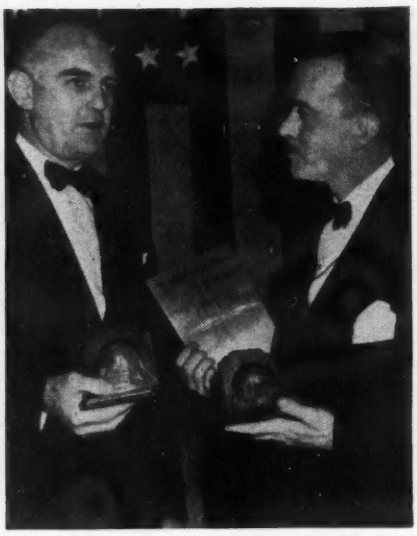
Coal Dust Explodes

A coal dust explosion in the Westover Plant of the New York State Electric & Gas Corp on Oct 12 injured three men, two of them critically. The company is investigating the explosion, which occurred in a coal pulverizing mill.



OSCARS in silver and bronze are presented to J. W. McAfee, left, president of the Union Electric Co of Missouri, by Weston Smith of the *Financial World*. Awards were given for the best 1947 annual report of any utility in the United States and in the Midwest geographic division

MEETINGS

Pennsylvania Electric Association—Systems Operation Committee, Benjamin Franklin Hotel, Philadelphia, November 4-5. W. C. Bryson, chairman, Duquesne Light Co, Pittsburgh, Pa.

National Association of Railroad and Utilities Commissioners—Annual Meeting, General Oglethorpe Hotel, Savannah, Ga., November 15-18. Ben Smart, secretary, 7411 New Post Office Bldg., Washington 25, D. C.

PREVIOUSLY LISTED

Wisconsin Utilities Association—Commercial and Technical Divisions of Electric and Gas Sections, Pfister Hotel, Milwaukee, November 1-3.

American Institute of Electrical Engineers—Southern District Meeting, Tutwiler Hotel, Birmingham, Ala., November 3-5.

National Electronics Conference—Edgewater Beach Hotel, Chicago, November 4-6.

Public Utilities Association of the Virginias—Annual Meeting, Greenbrier Hotel, White Sulphur Springs, West Virginia, November 5-6.

National Electrical Manufacturers Association—Annual Meeting, Hotel Traymore, Atlantic City, November 8-13.

Southeastern Electric Exchange—General Sales Conference, Atlantic Biltmore Hotel, Atlanta, Ga., November 10-12.

National Farm Electrification Conference—Congress Hotel, Chicago, November 17-19.

New Jersey Utilities Association—Annual Meeting, Seaview Country Club, Absecon, November 18-20.

American Society of Mechanical Engineers—Annual Meeting, Hotels Pennsylvania and New Yorker, New York, November 28-December 3.

National Exposition of Power and Mechanical Engineering—Grand Central Palace, New York, November 29-December 4.

National Electrical Contractors Association—Annual Meeting, Roney Plaza Hotel, Miami, Fla., November 30-December 3.

SEC RULINGS

NORTHERN STATES POWER CO (Minn.) has received SEC clearance on certain amendments to its articles of incorporation. This action puts into effect certain transactions of the company which have already been allowed by the commission. These transactions include increase in authorized shares of no par common stock to 12,500,000 shares, change and reclassification of outstanding common shares from 3,518,889 shares to 9,527,623 common shares, and cumulative voting rights for all shareholders. The clearance by the commission also permits an increase in the voting rights of its $4.80 series cumulative preferred stock from one vote per share to three votes per share. (Release No. 8546).

NORTH AMERICAN CO has been allowed to stabilize the market in connection with an offering of its holdings of 75,000 shares of Pacific Gas & Electric Co $25 par common stock. North American may stabilize the market price of the stock on the day fixed for opening of bids on the New York, San Francisco, and Los Angeles stock exchanges until acceptance or rejection of bids. The commission further ordered that the proposed sale and transfer of the stock is necessary or appropriate to effectuate the provisions of Section 11 (b) of the Public Utility Holding Company Act of 1935. (Release No. 8561 and 8575).

STANDARD GAS & ELECTRIC CO has been allowed to offer for sale at competitive bidding 250,000 shares of Oklahoma Gas & Electric Co's $20 par common stock. Standard Gas plans to apply the proceeds toward the payment of interest and principal on its outstanding bank loans, due April 10, 1949. As of June 30, the company had outstanding nearly $20,700,000 of these loans. (Release No. 8566).

NEW ENGLAND PUBLIC SERVICE CO has been granted an extension until Oct 9, 1949, to repay $11,900,000 of outstanding bank loans from the First National Bank of Boston and four other banks and trust companies. The company also had asked the commission to extend the time within which it must sell utility stocks to repay its bank loans. The commission did not take any action on this matter, seeing "no necessity" because of a pending proposal. The proposal calls for the sale at competitive bidding of 200,000 shares of the company's holdings of the Public Service Co of New Hampshire $10 par common stock. New England Public Service holds 493,856 shares of New Hampshire's stock. (Release No. 8567).

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To Head Tennessee PUC

John C. Hammer has been named chairman of the Tennessee Railroad and Public Utilities Commission to succeed Andrew T. Taylor, who resigned recently to become a circuit judge at Jackson. The only other member of the commission is Hammond Fowler. There is one vacancy.

Utility Assets Increase $1,174,171,543 in 1947

Assets of the larger privately owned electric utilities in the United States totaled $19,257,654,836 at the end of 1947, according to the yearly report of the Federal Power Commission. This was an increase of $1,174,171,543 over 1946.

The report covers the 314 electric utilities with annual revenues of $250,000 or more. They represent, on the basis of both assets and revenues, more than 98% of the privately owned electric light and power industry in the country.

Utility plant of these companies increased $1,077,465,415 in 1947 to a total of $16,029,031,141. Reserves for depreciation of utility plant amounted to $3,571,634,431, an increase of $244,273,234 over the previous year.

The outstanding long-term debt was $6,601,428,514, or $451,775,375 more than at the end of 1946. The major part of this increase was in the form of bonds.

Equity securities increased $284,503,644, bringing capital stock outstanding to a total of $6,223,660,299. Combined capital surplus and earned surplus accounts totaling $1,292,073,270 showed only a slight increase over the 1946 total of $1,262,442,939.

Net income in 1947 was $642,682,179, compared to $637,626,056 in 1946, or an increase of $5,056,123.

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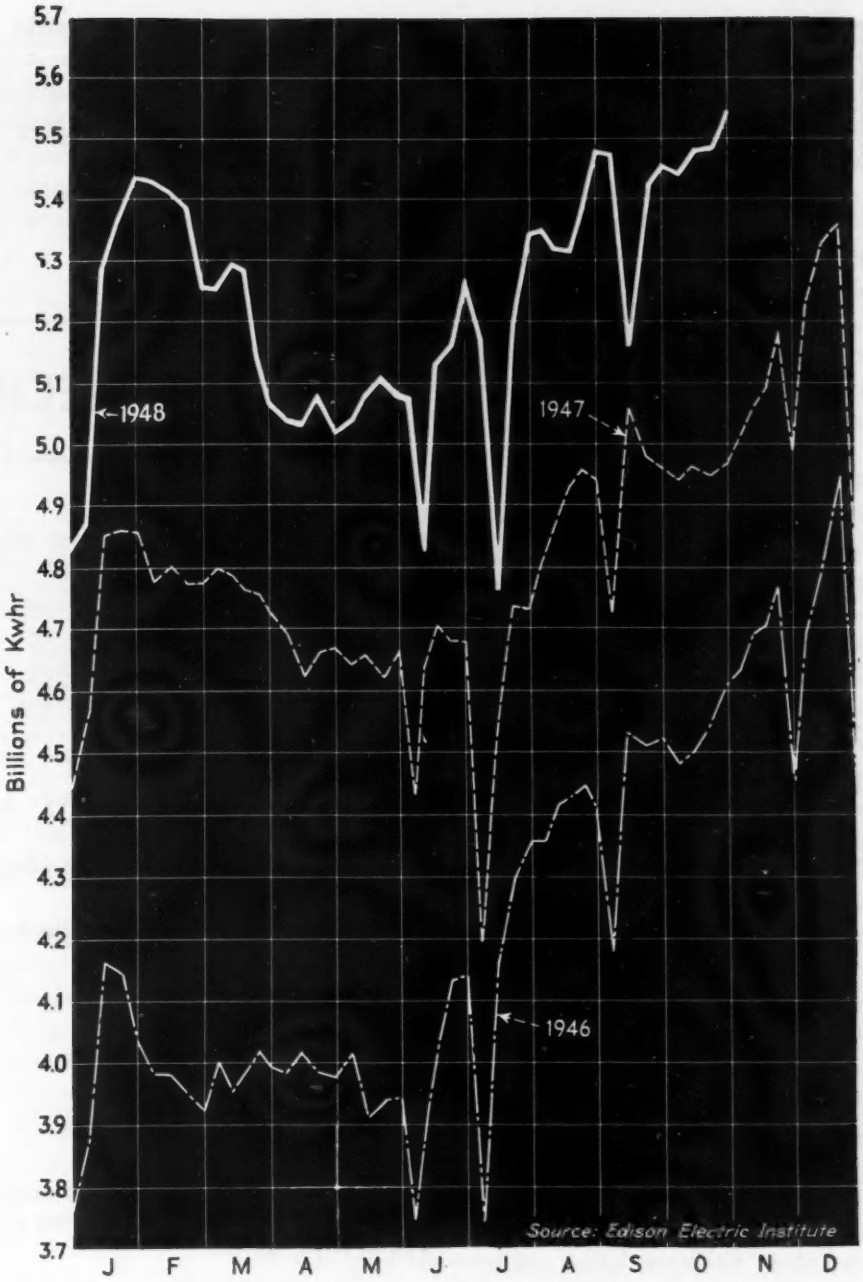
BPA and Coulee Provide Half of Northwest Power

Total energy output of Bonneville and Grand Coulee Dams during the fiscal year ended June 30 was 10,885,907,000 kwhr, representing 51.7% of the entire supply of electric power in the Northwest Power Pool in Oregon, Washington, Idaho, Montana, and Utah.

Industry, including military establishments, accounted for 50.4% of gross revenue from electricity sold by the Bonneville Power Administration, publicly owned utilities 17.61%, private utilities 31.14%, and others 0.79%.

An audit completed by Arthur Anderson & Co, Seattle, revealed that sale of power from the two dams returned $9,136,181 to the United States Treasury during the fiscal year. Total revenue was $24,513,710, an increase of more than $1,500,000 over the wartime peak year of 1945 and $2,622,781 more than the fiscal year ended June 30,1947.

All Bonneville administration income is deposited in the federal treasury, and expenses are paid by Congressional appropriation.



Central Stations Have Record Week

Output of central stations reached 5,538,885,000 kwhr for the week ended Oct. 23 and for the third successive week set a new record high. The Federal Power Commission also made a contribution to power output data by reporting that 35% of 184 Class I electric systems and operating pools reduced loads a total of 617,712 kw during the December, 1947, peak.

How did the utilities reduce load? Curtailment of service to interruptible customers was the principal means. This cut off 384,200 kw. Lowering voltage took off 131,477 kw; shifting of load to off-peak periods, 48,750 kw; voluntary customer curtailment, 43,480 kw; and other curtailments, 9,805 kw.

And what area was hardest hit? The report asserts it was the Southeast, where curtailments totaled 153,500 kw.

Weekly Output, Millions Kwhr

1948		1947		1946	
Oct 23	5,539	Oct 25	4,964	Oct 26	4,602
Oct 16	5,482	Oct 18	4,946	Oct 19	4,540
Oct 9	5,482	Oct 11	4,958	Oct 12	4,495
Oct 2	5,449	Oct 4	4,935	Oct 5	4,478
Sept 25	5,461	Sept 27	4,956	Sept 28	4,518
Sept 18	5,426	Sept 20	4,977	Sept 21	4,507
Sept 11	5,166	Sept 13	5,053	Sept 14	4,521
Sept 4	5,470	Sept 6	4,721	Sept 7	4,184
Aug 28	5,478	Aug 30	4,940	Aug 31	4,404

Percent Change from Previous Year

	Oct 23	Oct 16	Oct 9
New England	+ 7.1	+ 6.0	+ 6.4
Mid-Atlantic	+ 8.2	+ 6.2	+ 7.4
Central Industrial	+12.2	+11.7	+11.1
West Central	+12.7	+11.6	+ 9.2
Southern States	+11.8	+11.6	+11.6
Rocky Mountain	+16.8	+14.6	+14.1
Pacific Coast	+13.9	+14.0	+12.8
Total United States	+11.6	+10.8	+10.6

IN THE INDUSTRY

RICHARD N. LARKIN

HEARINGS WHICH the Federal Power Commission has been holding on the New York Power Authority's bid to develop St. Lawrence River power re-emphasize an aspect of United States power policy that is peculiarly out of tune with reality. That is the policy which requires power disposal to be for the particular benefit of domestic and rural consumers.

This policy is stated explicity in Sec 1005 (5) of the Power Authority Act, as follows: ". . . and that in the development of hydro-electric power therefrom the project shall be considered primarily as for the benefit of the people of the state as a whole *and particularly the domestic and rural consumers* to whom the power can economically be made available, and accordingly that sale to and use by industry shall be a secondary purpose, to be utilized principally to secure a sufficiently high load factor and revenue returns to permit domestic and rural use at the lowest possible rates and in such manner as to encourage increased domestic and rural use of electricity."

With the exception of three words, this excerpt from the New York act is repeated verbatim in Sec 11 of the TVA act. The significant phrase ". . . *and particularly of domestic and rural consumers* . . ." is to be found in Sec 4 of the Fort Peck Act and 4(a) of the Bonneville Project Act. One may assume, then, the federal policy is to favor domestic and rural power users.

Now FPC's engineering report on the NYPA application for a St. Lawrence license asserts, on Page 18, Paragraph 44, that "A transmission system, capable of delivering the project output, less losses, to selected load centers is estimated to cost $67,000,000." It is flatly asserted by several experts on the St. Lawrence that industries which use lots of power would be glad to contract now—years before generation can begin—for every kilowatt and kilowatt-hour of St. Lawrence power and to build plants to use it at the site. This procedure could save almost all of that $67,000,000 estimated to be the transmission bill on the project NYPA proposes. But such a logical and economical use of the St. Lawrence output can't even be suggested seriously, for the law says it must go to "domestic and rural consumers."

Well, of course, if the amount of power which could be generated in these United States were limited to a figure less than that which is now used, there might be a very real point in enacting laws to assure that domestic and rural customers got their share. Indeed, under today's rate structures, just the opposite might prove to be the real need! But the fact is that there is no limit to the power which can be generated.

Or, if privately owned systems were charging all the traffic would bear and keeping the price of electricity beyond the reach of the great mass of people, such a restriction might be wise. But the evils of unregulated natural monopolies were so self-evident that we began regulating them some generations ago. The persons who wrote these legislative restrictions doubtless believed that regulation had been ineffective. But that's a case that hasn't been proved, and, in any event, regulation has not been so ineffective as to warrant such a clause as this.

TECHNICAL TRENDS

ARCHER E. KNOWLTON

Three-phase regulators are attractive but they have an inescapable limitation on unbalanced loads and may therefore necessitate more inbuilt circuit capacity.

Power houses may be kept a trifle cooler if water air-coolers are used to carry away the unwanted heat from enclosed auxiliary motors.

Mobile power plants are likely soon to have gas turbine prime movers. All they will need will be a track, an oil supply and connections to the power system.

Changing the system frequency from 50 to 60 cycles is an expensive conversion. It has run as high as $44 per customer for all the changes required.

Oil oxidation tests are so individualistic that each country's experts are sure it has the best and that all others in other countries are open to serious doubt and criticism.

Coal was bought in 1947 at an average price of $6.11 per ton by 76 utilities. The range was $2.37 to $10.91.

Shunts and mutual inductors for more accurate measurement of rate of change and magnitudes of surge current are being developed at the National Bureau of Standards. Coaxial tubes are used for both equipments.

Protection of large motors on power station auxiliaries seems mostly to comprise instantaneous trip on motor faults and low-pick-up inverse-time relays to clear prolonged overloads.

Corona loss at 380 kv under most unfavorable weather conditions can be 50 or more times as great as under most favorable but, of course, only for a very small time each year.

Air switches with arcing horns (formerly called air-break switches) are properly called horn-gap switches and those without are disconnecting switches. The terms are often confused.

MANUFACTURERS and MARKETS

CONTROL ENGINEER, standing directly behind control unit of A. B. Chance mobile laboratory, checks circuit over the phone with engineers at the instrument board in the trailer. At "all clear" signal, engineer will dash behind barrier to watch fuse cutout blow open

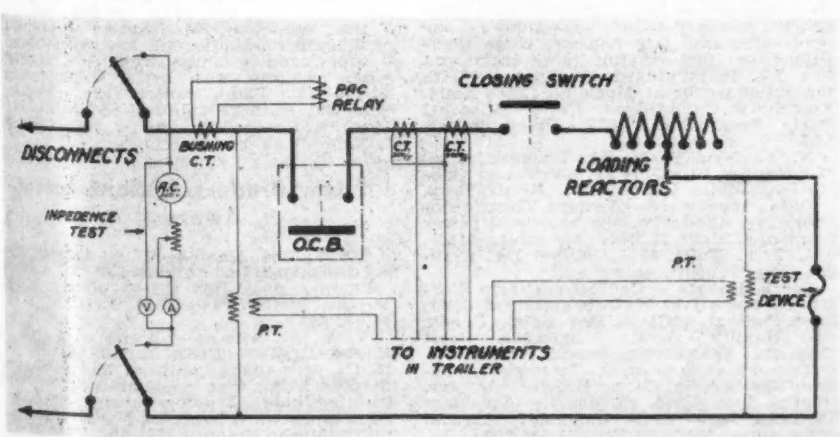
A. B. Chance Co Develops Mobile Lab to Test Circuit-Interrupting Devices

Development of a mobile laboratory to test circuit-interrupting devices has been completed by the A. B. Chance Co. The first series of tests on fuses and fuse cutouts utilizing this equipment were run recently in the company's test yard in Centralia, Mo. They were witnessed by about 25 utility engineers.

The mobile laboratory, which will be used in furthering studies of apparatus research development and application, was built under the supervision of L. J. Linde, the company's chief engineer. It is completely self-contained except that power source is obtained by tapping off a distribution primary.

The complete laboratory is made up of two units, a truck and its equipment designated as a control unit and a trailer designated as the instrument unit. Ready for the road, the complete laboratory weighs 22,000 lb. All equipment is designed for ease of handling. The first test can be run within one hour after the unit is located.

All power equipment is designed to withstand 20,000-amp short-circuit current and is insulated to withstand 45 kv. Maximum operating voltage is 15-kv phase to ground, and maximum interrupting capacity is determined by the rating of the oil circuit breaker.



POWER CIRCUIT of the control unit of A. B. Chance Co mobile laboratory

The truck carries one 3-kw, a-c and one 5-kw, d-c gasoline-driven generator set. These units are started and stopped from the trailer. The truck also carries cable wheels for power and control cables, miscellaneous supplies, and tools. The oil circuit breaker is recessed in the floor at the front of the body.

The trailer carries a complete control branch in front. All electrical controls are maintained at this point, suitable lamps indicate completion of all operations. An eight-element magnetic oscillograph records all transient or steady-state electrical phenomena.

A special timer, driven by a synchronous motor, determines the precise time for closing the synchronous switch and for opening the back-up breaker. This timer is adjustable for periods of time up to eight cycles and fractions of a cycle to plus or minus one electrical degree. The trailer is also equipped with a dark room for developing film. The rear portion of the trailer is set up as a conference room for visitors and operating personnel.

A high speed camera, equipped with a telephoto lens, is carried. It can be adjusted to make movies up to 3,000 frames per second. This speed will provide records of mechanical operations of the test device and will be of assistance in analyzing the arcing of certain devices on test. The camera is controlled and operated electrically so that it can be synchronized with other test procedures.

Body hoods of the truck are used as

observation shelters during tests. When ready for the road, the disconnect switches and entrance bushings on top of the truck are covered with aluminum hoods. On tests these hoods are set up on edge to provide observation shelters. The larger has shatter proof glass on its face and is large enough for half a dozen observers.

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GE Sales Advance 24%, Reach $1,137,935,052

Consolidated net sales billed in the first nine months of 1948 by General Electric Co amounted to $1,137,935,052, compared with $921,221,142 in the same period a year ago, an increase of 24%. Sales during the third quarter of 1948 were $365,173,260, compared with $319,878,332 in the corresponding quarter of 1947, an increase of 14%. The sales volume in the three months ended Sept. 30, 1948, was about 10% below that for the second quarter of this year because of vacation shutdowns of plants, Charles E. Wilson, president, announced.

Operations of the company and its consolidated affiliates for the first nine months of this year resulted in a profit available for dividends of $83,893,459, an increase of 34% over the $62,466,626 earned in the corresponding period last year. Earnings for the nine months this year were equivalent to 7.4 cents per dollar of sales and to $2.91 a share of common stock, compared with 6.8 cents on the sales dollar and $2.17 a share earned in the similar period a year ago.

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Kellems Co Moves Plant

Vivien Kellems, ordered by the courts to move her cable grip factory out of Westport, Conn., because of zoning restrictions, has announced that she will set up a new plant in Stonington, Conn. Miss Kellems said that with the aid of the State Development Commission she had obtained a one-and-a-half-story brick and cement building in Stonington formerly occupied by the American Velvet Co.

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Move Vancouver Offices

New premises of the Canadian General Electric Co, Ltd, at 1095 West Pender St, Vancouver, B. C., have been officially opened. The new warehouse, showroom and offices adjoin the old CGE building, which has been remodeled. Service and sales departments are located on the ground floor with 20,000 sq ft of office area on the second floor.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Arizona-Nevada — Bureau Reclamation Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping or f.o.b. cars Kingman (Louise), Phoenix, Maricopa, Casa Grande, Coolidge and Mesa, Ariz., Boulder City, Nev., and Earp, Calif., carrier current telephone transmitter receiver sets with line-tuning equip., for Davis and Hoover Power Plants. Basic Magnesium, Phoenix, E. D 5 and Coolidge Substations; line-tuning equip. for two and three-way carrier-current bypass for Hoover Tap, carrier-current telephone transmitter receiver sets without line-tuning equip. for Parker, Hoover and Davis Power Plants. Phoenix and Mesa Substations; 10,000 lin. ft. coaxial carrier-frequency cable for Hoover Power Plant; 14,000 lin. ft. for Davis Power Plant; 6,000 lin. ft. for Parker Power Plant; 3,500 lin. ft. for Phoenix substation; 3,100 lin. ft. for Coolidge substation; 1,700 lin. ft. for Mesa substation, etc. for Davis Dam and Parker Dam Power Systems. Davis Dam Proj., Spec. 2437, L. N. McClellan, ch. engr.

Iowa—South Crawford Rural Electric Co-operative, Denison, 96 mi. rural distr. lines, sys. imprvs., Crawford Co. **$453,000.**

Kan., Larned—City, City Hall, power building changes and addnl. generating equip. **$160,000.**

Kentucky—Pennyville Rural Electric Co-operative Corp., Hopkinsville, 510 mi. rural distr. lines, sys. imprvs., Todd Co. **$1,130,000.**

La., Jena—Town, voted **$295,000** bonds, electric lighting sys.

Minn., Maple Lake—Rural Co-operative Power Assn., O. N. Gravgaard, pres., Maple Lake, furnishing, del., one 11,500 kw. turbine generator, one 12,000 sq. ft. condenser, one 12,500/14,375 kva., 3 phase transformer, several miscellaneous transformers, 69 kv., 600 ampere, oil circuit breakers. $1,000,000. Plans deposit $25. R. D. Thomas & Assoc., 400 Metropolitan Life Bldg., Minneapolis, engrs.

Mississippi — Magnolia Electric Power Assn., McComb, 30 mi. rural distr. lines, sys. imprvs., Pike Co. **$450,000.**

Mo., Fulton—City, City Hall, light plant and equip. imprvs. **$300,000.**

Montana—U. S. Eng., Administration Bldg., Fort Peck, one 50,000 hp. hydraulic turbine and one set governing equip., Fort Peck Power Plant, Missouri River, near Fort Peck, Serial No. Eng-24-016-49-19.

Nebraska — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., two 3x3 ft. high pressure gates with two 49,000 lb. hydraulic hoists; one hydraulic gate hanger with parts for selsyn indicator and one single-throw mercury-switch assembly; one semi-automatic gate hanger; three transitions, not incl. conduit-lining sects. and two 1¼ in. standard shoulder eyebolts for outlet works at Medicine Creek Dam, Frenchman-Cambridge Unit, Missouri Basin Proj., Spec. 2435. Plans deposit $2.50.

N. Y., New York—Bd. Transportation, 250 Hudson St., Zone 13, 239 Street Substation, White Plains Line, Bronx Boro.

Okla., Woodward—Western Electric Co-operative, Anadarko, 900 hp. diesel power plant and 75x88 ft. bldg. for same. **$100,000.** J. F. Huitt, 6535 Clayton Rd., Clayton, Mo., consult. engr.

South Dakota — Codington-Clark Electric Co-operative, Watertown, rural distr. lines, Codington, Clark, Day, Spink, Beadle and Hamlin Counties. **$805,000.** Scott Eng. Co., Watertown, consult. engr.

Tennessee—Southwest Tennessee Electric Membership Corp., Brownsville, sys. imprvs. incl. 6 mi. tie line, headquarters facilities, 2 way radio equip., 547 mi. rural distr. lines. Madison Co. **$1,535,000.**

Texas—Bowie-Cass Electric Co-operative,, Douglasville, 356 mi. rural distr. lines, sys. imprvs. and headquarters facilities, Bowie Co. **$690,000.**

Washington—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing 2 coupling capacitors, each with potential device with carrier-current accessories for connection to 115,000 volt lines for 115 kv. switchyard, Grand Coulee Power Plant, Columbia Basin Proj., Spec. 2446. Plans deposit $.75.

Wisconsin—Price Electric Co-operative, Phillips, 165 mi. rural distr. lines, Price Co. Plans deposit $25. Carl C. Crane, Inc., 2702 Monroe St., Madison, engr.

Low Bidders & Contracts Awarded

California—Pacific Gas & Electric Co., 245 Market St., San Francisco, Colgate powerhouse 35,000 hp. about 35 mi. northeast of Marysville, **$3,500,000**; electric substation, Sunnyvale, **$105,000**; natural gas storage tank 17,000,000 cu. ft., Richmond, **$4,000,000.** Owner builds. Grand total $7,605,000.

Colorado—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Oct. 7, Schedule (1) one 2,500 kva. mobile unit substation, Colorado-Big Thompson Proj., Spec. 2340, from Westinghouse Electric Co., 988 Cherokee St., Denver. **$67,899.**

Ill., Springfield—City, turbine and condensor for light plant to Allis Chalmers Co., 1901 S. 11 St., **$583,000** and **$104,087** respectively. Bids 7/27, awarded 9/28.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

N. Y., New York—New York City Housing Auth., 63 Park Row, Zone 7, plans by William F. R. Ballard, 123 E. 77 St., Zone 21, Dyckman Houses, seven 14 story bldgs. on 14.21 acre site bounded by Dyckman St., Nagle Ave., W. 204 St. and 10 Ave. **$11,000,000.**

Tex., Lubbock—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., plans by Staub & Rather, 500 Stuart St., 500 bed neuropsychiatric hospital. **$10,000,000.** Addison Erdman, 56 W. 45 St., New York, N. Y., and Slocum Kingsbury, 917 15 St., N.W., Wash., D. C., advising archts. Haynes & Kirby, Lubbock, consult. archts.

Tex., Victoria—E. I. du Pont de Nemours & Co., La Porte, nylon chemical plant. **$8,000,000.**

Wash., Aberdeen—St. Joseph's Hospital, Aberdeen, hospital addn. **$1,000,000.**

Wis., Madison—Bd. Regents University of Wisconsin, Madison, 2 E-shaped bldgs., 3 story and 4 story wing, engineering bldg., concrete, steel, brick, stone constr. $4,800,000. Plans deposit $25. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., Green Bay, archts. R. C. Kirchhoff, Madison, state archt.

Low Bidders & Contracts Awarded

N. M., Los Alamos—U. S. Atomic Energy Comn., Los Alamos, high school, swimming pool, Inv. 291-48-102, to R. E. McKee, P. O. Drawer 562, El Paso, Tex. **$2,011,663.**

N. Y., St. Albans—Bureau of Yards & Docks, Yards & Docks Annex, Wash. 25, D. C., permanent facilities, incl. betatron therapy bldg., 6 story administration and training bldg., 2 story subsistence bldg., six 3 story ward bldgs. at Naval Hospital, to Thompson Starrett Co., Inc., 444 Madison Ave., New York, **$14,823,000.** Bids 9/23.

NEWS ABOUT PEOPLE

Mitchell Heads Industrial Unit, ECA French Mission

Announcement has been made of the appointment of William E. Mitchell, formerly president of the Georgia Power

W. E. MITCHELL

Co, as chief of the industrial division of the ECA mission to France. As director of the industrial division, Mr Mitchell will screen French requests for industrial equipment, making recommendations for the allocation of American aid from the ECA program.

For many years a prominent figure in the electrical industry in the Southeast, Mr Mitchell became identified with the Georgia Power Co in 1927 as vice-president and general manager, having previously served with the Alabama Power Co for 15 years in several executive positions. He was elected president of Georgia Power in 1945 and two years later retired. Mr Mitchell has taken a leading part in the civic and public welfare activities of Atlanta.

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▶ALFRED MAY, commercial manager of the San Diego Gas & Electric Co, San Diego, Calif., has retired after 37 years with the company. He was appointed to his present position in 1932.

▶DR VANNEVAR BUSH, director of the Office of Scientific Research and Development during the war and president of the Carnegie Institution, has won the 1949 medal of the Industrial Research Institute, Inc. Dr Bush was cited "for his leadership in the Office of Scientific Research and Development, in marshaling industrial and academic research and coordinating it with the military effort in the common defense, developing an instrument of government so effective as to provide a pattern for continued service." The award will be presented at the February meeting of the Institute.

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F. G. Schmidt Assumes New Executive Duties

Frederick G. Schmidt, chief engineer of the Electric Power Equipment Corp, Philadelphia, since 1946, has been ap-

F. G. SCHMIDT

pointed general manager of that company. During World War II Mr Schmidt served as lieutenant commander in the Navy.

A graduate of Pennsylvania State College in electrical engineering, Mr Schmidt was connected with the General Electric Co before entering military service.

M. E. Miller, president of Electric Power Equipment Corp, has resigned, effective Oct 15.

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▶RALPH R. EASTER has been appointed assistant to the chairman of the board of the Portland General Electric Co, with headquarters at Portland, Ore. For 23 years he has been manager of the company's Tualatin Valley division. JOHN ENSCHEDE, assistant manager of the Tualatin Valley division, has been advanced to manager, succeeding Mr Easter.

Electrical World Appoints New Pacific Coast Editor

Joseph A. Robinson, for the past year connected with the staff of ELECTRICAL WORLD on the Pacific Coast, has been appointed Pacific Coast editor to succeed Walter C. Heston, who will devote

J. A. ROBINSON

full time to his duties as engineering editor of *Electrical West*, another McGraw-Hill publication.

A native of California, Mr Robinson received his electrical engineering degree from the University of California in 1942. He became identified with the General Electric Co immediately after graduation, spending several months in the San Francisco office before his assignment to GE factories in the East. These included Erie, Pa.; Pittsfield, Mass.; Schenectady, N. Y.; and Philadelphia, Pa. Returning to the Pacific Coast in the fall of 1943, he served in the engineering department and in the industrial division of the apparatus department before he joined the staff of ELECTRICAL WORLD and *Electrical West* last year as assistant to Mr Heston.

Mr Robinson is active in committee work for the American Institute of Electrical Engineers.

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▶CHARLES E. WILSON, president of General Electric Co, has received first prize in the American Heritage Employee Relations Competition sponsored by Printers' Ink in cooperation with the American Heritage Foundation at a recent luncheon of the Advertising Club,

New York. The prize, a working scale model of the Freedom Train, was presented by Thomas D'Arcy Brophy, president of the foundation. Mr Wilson accepted the award in behalf of the 197,000 employees of GE, who have been cooperating in a campaign to inform themselves and the public of the privileges and responsibilities of the people of the United States.

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Oglebay Elected President, Indiana Electric Group

(See Front Cover)

G. J. Oglebay, vice-president in charge of operations of the Public Service Co of Indiana, has been elected president of the Indiana Electric Association.

Practically all of Mr Oglebay's business career has been devoted to the electrical industry through association with the Public Service Co of Indiana, Inc, or predecessor companies. Starting in the line department of the municipal electric plant at Tipton, Ind., in 1902, he served during the next eight years as a lineman, trouble man, meter reader, meter man, and relief engineer.

In 1910 he was appointed manager of the Tippecanoe Electric & Power Co, which three years later was acquired by the Interstate Public Service Co. After Interstate became a part of the present Public Service Co of Indiana, he served as district manager at several locations in Indiana and was appointed assistant to the vice-president in charge of operations in 1927. He served in that capacity until 1938, when he was elected vice-president in charge of operations and a director of the company.

J. G. MOONEY, vice-president of the Indiana & Michigan Electric Co, South Bend, Ind., has been elected vice-president of the association.

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▶J. W. ANDERSON, head of the rural and industrial development department of Consumers Public Power District since 1946, has left the district to become general manager of the Muscatine, Ia., Municipal Light & Power Department. He had been with the district since 1941. Mr Anderson was previously employed by the Central Power Co.

▶RAY M. MOUNTAIN has been appointed sales manager of The Glolite Corp, Chicago. Mr Mountain was recently sales manager of Jewel Products, Inc, and Signalite Fuse Co, of Bloomfield, N. J. He has served in various sales capacities throughout the country for the past 12 years.

W. V. O'Brien Directs Sales, GE Apparatus Department

Announcement has been made of the appointment of W. V. O'Brien as general sales manager of General Electric

W. V. O'BRIEN

Co's apparatus department. Mr O'Brien has been assistant general sales manager since December, 1947. He will continue to direct the coordinated sales activity of the apparatus department's 16 product divisions through apparatus sales offices throughout the country.

Mr O'Brien has been associated with General Electric since 1922, when he entered the company's "test course." He served in several sales engineering capacities in the company's southeastern district, in the central station division at Schenectady, as assistant to the manager of the lighting and cable division, manager of the wire and cable division, and assistant manager of the central station division. Appointed manager of the central station divisions in 1945, he served in that capacity until he became assistant manager of sales.

OBITUARY

▶GEORGE B. ANDERSON, superintendent of the western division of the Nova Scotia Power Commission for the past 15 years, died on Sept 29 in Liverpool, Nova Scotia, at the age of 60. Mr Anderson had previously been with the Pictou County Electric Co at Pictou, N. S. He joined the staff of the NSPC in 1924 at Sheet Harbor, N. S.

▶GEORGE E. MACMANNUS, long associated with the electrical manufacturing industry, died on Oct 6 at his home in West Hartford, Conn. He was 68 years old. Mr MacMannus' career began with the Brooklyn Edison Co more than 40 years ago in the meter service department. Later he joined the New York office of Johns-Manville and in 1922, when the Johns-Pratt Co, division of Johns-Manville, was sold to the Colt's Patent Fire Arms Co, Mr MacMannus joined the Hartford company as an electrical engineer. When the electrical division of Colt's was purchased by the Federal Electric Products Co, Newark, N. J., in 1944, Mr MacMannus continued with the new company in the same capacity. He retired last March. He was a member of the International Association of Electrical Inspectors for many years.

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D. C. Durland

D. C. Durland, chairman of the board of the Canadian General Electric Co, Ltd, died in White Sulphur Springs, W. Va., on Oct 19 as the result of a heart attack. He was 76 years old.

Born in New York City, Mr Durland was graduated from Princeton University in 1894 as an electrical engineer and that fall entered the employ of the General Electric Co. He had been connected with GE and its affiliates for 54 years. Mr Durland had been a director of the Canadian company since 1924 and chairman of the board since 1941, having held that position together with the presidency of the company from 1941 until 1946.

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▶GEORGE J. CHAPMAN, assistant manager of the appliance and merchandise department of the General Electric Co, died at his home in Greenwich, Conn., on Oct 19. He was 57 years old. Mr Chapman had been with GE since his graduation in 1913 from Syracuse University with a degree in mechanical engineering. Except for an interval of military service in World War I, he held, until 1931, various positions with the company's lamp department in Cleveland. He was appointed assistant manager of specialty appliance activities in 1931, moving up to manager in 1935. He had held his most recent position since 1939.

▶LEE F. ADAMS, General Electric Co standards consultant, died at his home in Schenectady, N. Y., on Oct 14 at the age of 63. Mr Adams began his career with GE in 1906 and was appointed manager of the newly formed standards divisions of the company in 1938 to coordinate all activities pertaining to the development and application of standards throughout the company's organization. Born in Bellefonte, Pa., he was president of the U. S. national committee of the International Electrotechnical Commission and chairman of the standards council of the American Standards Association.

NEW EQUIPMENT

Distribution Transformers

ADDITION of 25 and 37½-kva transformers to the line of CSPB units for banked-secondary operation is announced by Westinghouse Electric Corp, Box 868, Pittsburgh 30, Pa. They are designed with all the protective features of the CSP distribution transformers and smaller sizes of CSPB transformers.

Some features follow. Proper coordination among these larger CSPB transformers in case of overloads or faults on the secondary is provided by newly developed, high-interrupting-capacity, type BR secondary breakers built into the CSPB transformers. Unusual conditions on any section of the secondary will be isolated by these breakers without affecting the remainder of the bank or producing any tendency to cascade the bank.

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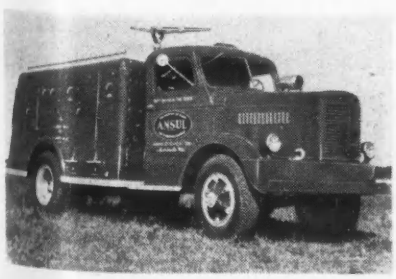
Fire Truck

TO TRANSPORT dry chemical as the primary extinguishing agent is a feature included in a new type fire truck manufactured by Fire Extinguisher Division, Ansul Chemical Co, Marinette, Wis. Applications are for installation where flammable liquid fire hazards exist.



Capacity of the truck is 2800 lb of dry chemical and 250 gal of water. Vehicle fully loaded weighs 21,500 lb. Width is 95¾ in. and length 21½ ft. Turret height is 10½ ft.

The truck has four wheel drive; five forward speeds and one reverse. Maximum speed that may be attained with removable governor is 62 mph. Four side compartments house accessory fire and rescue equipment.

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Gas Rectifier Bulb

A D-C POWER SUPPLY in the form of an argon-filled rectifier bulb has been introduced by Radiant Lamp Corp, 300 Jelliff Ave, Newark 8, N. J.

Suitable for use with motion picture arc rectifiers, battery chargers and similar equipment, this bulb is said to provide a constant source of ripple-free power. The recommended maximum output is 15 amp at 60 v d-c.

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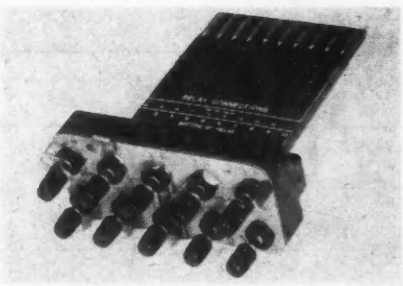
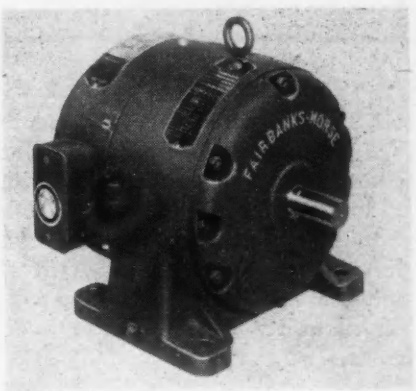


Test Plug

A NEW TEST PLUG for drawout relays, designed to make testing of relays easier and quicker than heretofore, has been announced by the Switchgear Divisions of the General Electric Co.

The new plug is made of plastic molding. All terminals are mounted on the vertical front of the plug. Each terminal is clearly marked on the front. Stud terminals are colored bright red. Relay connections are black. A complete set of hardware, including shorting bars and clips for test leads, accompanies each plug. A detailed description is contained in publication GEA-4984.



Motorgears

THE AXIAL air gap motor is now available as a motor speed reducer, according to manufacturer, Fairbanks, Morse & Co, 600 South Michigan Ave, Chicago 5, Ill. The units are available in ratings from ¾ to 10 hp. These Motorgears are symmetrical in design with no separate right-hand or left-hand assemblies. The motor may also be removed from the gear housing and run separately.

Two ratios of single helical gears are employed. Motor and gear shafts are parallel, with the centerline of the motor coinciding with the centerline of the low speed shaft. Gear housing is a one-piece casting, legs included.

The unit may be mounted on the floor, wall or ceiling, provided the shafts remain horizontal.

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Fluorescent Lamp

A NEW 25-w fluorescent lamp which makes use of krypton, a rare atmospheric gas, has been developed by Duro Test Corp, North Bergen, N. J. The lamp is said to be 50% more efficient in light output than standard 20-w fluorescent light sources.

In addition to the increased light output, other advantages reported are: 15% savings in current costs for the same amount of light; longer lamp life because lower voltages can be used to start the lamp; and elimination of expensive transformers.

The 25-w lamp will provide 1400 lumens, will be manufactured in a 1½-in. dia, 33-in. length tube and is standard white color. Other colors will be added subsequently.

ELECTRICAL BUSINESS OUTLOOK

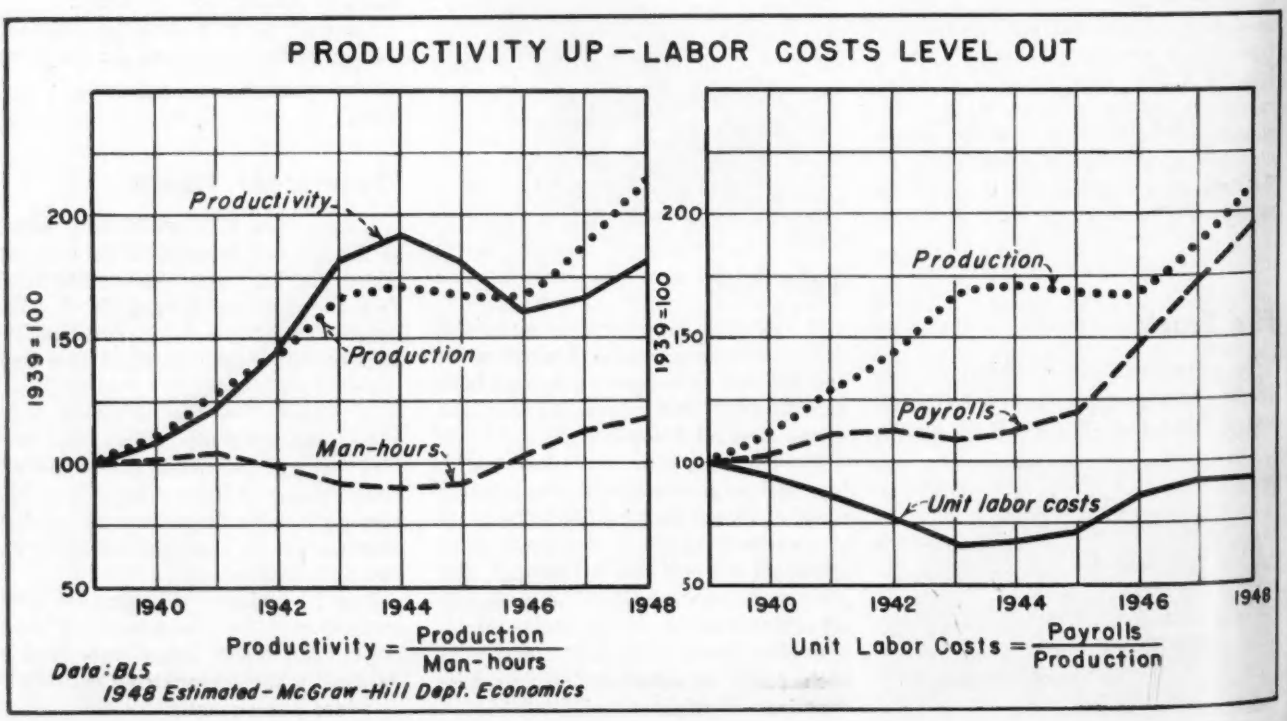
HAS THE TREND of labor costs finally turned down? For the past three years unit labor cost has risen steadily. But record power output in 1948 may result in lower labor cost per kwhr. Does this signal a return to the prewar trend of constantly decreasing labor cost per unit of output? It would mean much to utilities' cost picture. For payrolls make up a fourth of all utility expenses and over 40% of operating costs.

Last year was discouraging. Unit labor costs rose again. They had gone up during late war and reconversion years. But, in a way, 1947 was a surprise. What happened is shown by the charts. *Electrical World* has brought up to date for the first time the annual indexes published by the Bureau of Labor Statistics. The facts are here for all to see.

First, let's look at the course of productivity—output per man-hour employed. It normally tends to go up year after year. Power output over the years has run in a steady uptrend. And employment can stay more stable, since it doesn't take too many men just to run the generating plants. So labor costs can usually be spread over more kilowatt hours—with less cost per unit.

In the war productivity shot up at first. Utilities had to cut their staffs because of labor shortage, but production zoomed. So by 1944 output per man-hour shot up 90% over 1939. In 1945 output fell, and with it, productivity. In 1946, utilities began to fill out war-depleted staffs, so man-hours employed rose. But industry's use of power was held back by strikes. So productivity fell again. Last year saw output zoom to a new high. But employment, again, increased in utilities. So productivity registered only a slight gain.

All this explains what's happened to unit labor costs —payroll per kilowatt hour. Wages have been rising steadily for the past ten years. But in the war years productivity rose so sharply that it cut labor costs nonetheless. When productivity fell in 1945 and 1946, wages rose; so unit labor costs increased on two counts. Last year wages went up again—more than productivity—so unit labor costs advanced again.

NOW WHAT'S AHEAD? Last year output rose 13%, man-hours 9%, and productivity only 4%. This year, with another gain in output, man-hours are estimated up 5% and productivity, 8%. Last year, unit labor costs climbed 4% as wages outstripped productivity. This year labor costs are leveling out, may decline slightly. But they are still high.

There's no real drop yet. Unit labor cost last year was only 8% below 1939. Now it's probably still close to prewar levels. But utility rates are lower than before the war. And besides, we're in a construction period—the biggest ever. That's an added charge on payrolls. So a downward turn in unit labor cost is all important to utility earnings.